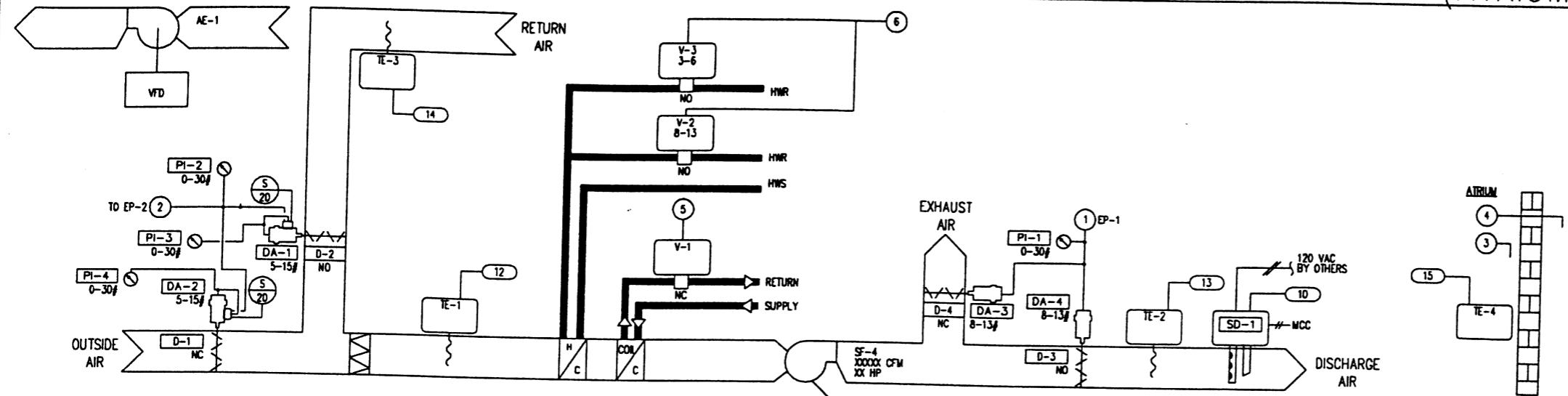


FLOW DIAGRAM AND EQUIPMENT LOCATION FOR AIR HANDLING UNIT AHU-4 (atrium)



FIELD MATERIAL			
DEVICE TAG	QTY	CODE NUMBER	DESCRIPTION
CS-1	1	705HD	CURRENT SWITCH-VERIS
D-1-D-4	4	---	SEE DAMPER SCHEDULE
DA-1-DA-2	2	D-3153-1	DPR ACT 8-38 V/PDS
DA-3-DA-4	2	D-3153-2	DAMPER ACTUATOR 8-138
PI-1-PI-4	4	G-2010-5	AIR GAGE 1-1/2"
SD-1	1	DH400ACDC	DUCT DETECTOR ION
	1	RTS451	REMOTE TEST STATION DUCT
ST-5	1	---	SAMPLING TUBE FOR
TE-1-TE-3	3	TE-6100-1	TEMP SENSING ELEMENT 17'
TE-4	1	TE-6000-1	SENSOR, 1000 OHM +/- 1%
	1	T-4000-3139	COVER, WHITE PLASTIC, HRZ
TE-6001-4	1	TE-6001-4	ELEMENT HOLDER FATE &
V-1-V-3	3	---	SEE VALVE SCHEDULE

PANEL MATERIAL

DEVICE TAG	QTY	CODE NUMBER	DESCRIPTION
ACC	25	PD-113-3	TERMINAL BLOCK; MEDIUM
DC-1	1	DX9100-8454	EXTENDED DIGITAL CONTROLLER-J.C.I.
EP-1	1	V11HGA-100	3-WAY AIR VALVE/N/BARBED
EP-2	1	EP-8000-4	EP TRANSD. / 4/20MILLI-A H
MS-1	1	A-4000-137	FILTER, OIL, IN-LINE
MS-2	1	PD-112-22	BUSY SSU FUSE HOLDER/
P-1	1	PD-112-23	FUSE T-5 (SAMP) FOR
PI-5-PI-7	3	M-8100-1824	RECEPTACLE POLARIZED
PT-1	1	G-2010-5	CONTROL CABINET;STD. FACE
R-1	1	DPT-2640-24	AIR GAGE 1-1/2"
TX-1	1	PD-109-35	DIFF PRESS TRANS-1/8" I.D.
	1	PD-101-26	RELAY; PLUG-IN DPDT V/LED
	1	T64M-2C	SOCKET RELAY; DPDT
			TRANSFORMER

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SEQUENCE OF OPERATION: Atrium Constant Volume System

Cooling mode - Above 55 Deg F outdoor air (Adjustable at the digital controller). The supply fan SF-3 will run continuously and be controlled from the motor control center and the ICS. The temperature sensor (TE-4) will be maintained at its setpoint (76 Deg F adjustable at digital controller) by staging the IX cooling.

Heating mode - Below 55 Deg F outdoor air (Adjustable at the digital controller). The supply fan SF-3 will run continuously and be controlled from the motor control center and the ICS. The electric heating coils will cycle by temperature sensor (TE-4) to maintain the room setpoint (70 Deg F adjustable at the digital controller).

Damper Control- The outdoor air damper (D-1) will open to its minimum position whenever the supply fan is started. When the system is in the cooling mode, if the outside air temperature is greater than the mixed air, the outside air dampers (D-2) will not modulate open more than is necessary to admit minimum ventilation air. The mixed air temperature (TE-1) will modulate all dampers (D-1 & D-2) to their minimum position to prevent the mixed air temperature from falling below its setpoint (47 Deg F adjustable at the digital controller).

If smoke detector SD-1 senses products of combustion in the air stream, the following sequence occurs:

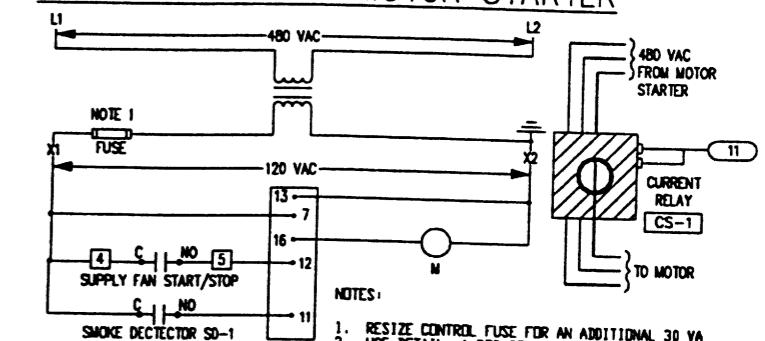
1. The return air damper (D-2) opens.
2. The outdoor air damper (D-1) closes.
3. The exhaust air damper (D-4) opens.
4. The discharge air damper (D-3) closes.

The system will capable of being manually placed in a smoke purge mode. This manual sequence will be executable from the digital controller of the ICS. Duct smoke detectors are to be manual reset type.

Positive pressure in the atrium will be measured by a static pressure sensor (PT-1) located in the atrium. The sensor through the DDC controller will override the mixed air sensor and modulate the outdoor air damper (D-1) opens and the return and exhaust dampers close to maintain positive pressure setpoint.

Discharge air temperature through sensor TE-2 and space temperature setpoint TE-4 will be monitored by the ICS.

SUPPLY FAN SF-4 MOTOR STARTER



DRAWING TITLE
Flow Diagram and Equipment Location for AHU-3

PROJECT	REFERENCE DRAWING NO.	SALES ENGR/PROJECT MGR	APPL ENGR	DRAWN BY	ECN DATE BY	APPROVED BY
The Argonne National Labs Advanced Photon Source Campus 9700 Cass Avenue South Argonne, IL 60439	IP SF	JOHNSON CONTROLS	Systems & Services Division	JOHNSON CONTROLS	1007 MALMO ROAD ARLINGTON HEIGHTS ILLINOIS 60005 708/364-1500 Main 708/806-4438 Eng	CONTRACT NUMBER 91390-0009
						DRAWING NUMBER 93-9-G-03A